AMENDMENTS TO THE CLAIMS

The Listing of claims below replaces all prior versions, and listings, of claims in the application.

1. (*currently amended*) ~~A method of quantifying a presence of a specific kind of microorganism in a sample of material, said method comprising: (a) culturing the sample under conditions suitable for growth of cultures of the specific kind of microorganism; (b) using at least one oligonucleotide to detect the presence or absence of the specific kind of microorganism in respective portions of the cultured sample; and (c) quantifying the presence of the specific kind of microorganism in the sample of material from the detected presence or absence of the specific kind of microorganism in the respective portions of the cultured sample.~~

A method for assessing the relative quantity of a viable microorganism of interest present in or on a food product, said method comprising:

obtaining a liquid suspension sample comprising a substantial entirety of at least one present and viable microorganism of interest from a known quantity of a food product;

preparing a series of progressively dilute test samples by combining portions of the liquid suspension sample with a dilution liquid;

incubating the series of progressively dilute test samples for a predetermined period of time under conditions conducive to growth of the microorganism of interest;

conducting a PCR analysis on the series of progressively dilute test samples;

and utilizing an estimation model to determine the concentration of viable microorganism of interest present on the food product based on results of the PCR analysis.

2. (*currently amended*)The method as claimed in claim 1, wherein said PCR analysis comprises at least one oglionucleotide which hybridizes with a nucleic acid sequence that is indicative of a species of the specific kind of microorganism.

3. (*currently amended*) The method of claim 1, wherein the sample is cultured on a plate of culture media, and the respective portions of the cultured sample are taken from respective colonies of microorganisms that have been found to have grown on the plate of culture media.

4. (currently amended) The method of claim 1, wherein progressively dilute test samples are prepared by ~~the sample is cultured~~ by dividing the sample into multiple portions and ~~culturing~~ incubating each portion, and wherein the presence or absence of the specific kind of microorganism is detected in each cultured portion.

5. (*currently amended*) The method as claimed in claim 4, wherein progressively dilute test samples are ~~the sample is~~ divided into the multiple portions by diluting the sample and dividing the diluted sample into the multiple portions.

6. (*currently amended*) The method as claimed in claim 4, wherein the progressively dilute test samples are ~~sample is~~ divided into multiple portions by mixing the sample with liquid to produce a fluid mixture, and dividing the fluid mixture into the multiple portions.

7. (*currently amended*) The method as claimed in claim 1, wherein the PCR analysis comprises using ~~of~~ at least one oligonucleotide to detect the presence or absence of the ~~specific kind of~~ microorganism of interest in respective portions of the ~~cultured~~ incubated sample which includes detecting the presence or absence of a product of hybridization of said at least one oglionucleotide with a nucleic acid sequence that is indicative of the ~~specific kind of~~ microorganism of interest.

8. (*currently amended*) The method as claimed in claim 1, wherein the PCR analysis comprises using ~~of~~ at least one oligonucleotide to detect the presence or absence of the ~~specific kind of~~ microorganism of interest in respective portions of the ~~cultured~~ incubated test samples ~~sample~~ which includes using two oligonucleotide primers that induce a polymerase chain reaction in the presence of nuclear material of the ~~specific kind of~~ microorganism of interest, and detecting the presence or absence of a product of the polymerase chain reaction of the two oligonucleotide primers in the presence of the nuclear material of the ~~specific kind of~~ microorganism of interest.

9. (*currently amended*) The method as claimed in claim 8, wherein one of the ~~oglionucleotide~~ oligonucleotide primers hybridizes with a nucleic acid sequence indicative of the genus of the ~~specific kind of~~ microorganism of interest, and another of the ~~oglionucleotide~~ oligonucleotide primers hybridizes with a nucleic acid sequence indicative of the species of the ~~specific kind of probiotic~~ microorganism of interest.

10. (*currently amended*) The method as claimed in claim 8, wherein the detecting of the presence or absence of a product of the ~~polymerase chain reaction~~ PCR of the two oligonucleotide primers in the presence of the nuclear material of the specific kind of microorganism includes performing electrophoresis of ~~polymerase chain reaction~~ PCR products to detect a reaction product having a characteristic molecular length indicative of a polymerase chain reaction of the two oligonucleotide primers in the presence of the nuclear material of the ~~specific kind of~~ microorganism of interest.

11. (*currently amended*) The method as claimed in claim 1, wherein the ~~presence of the specific kind of microorganism in the sample of material is~~ estimation model is ~~quantified in terms of a~~ most probable number method ~~of the specific kind of microorganism.~~

12-15. (*canceled)*

16. (*new*) The method as claimed in claim 1, wherein the viable microorganism of interest is a harmful or undesirable organism.

17. (*new*) The method as claimed in claim 6, wherein the harmful or undesirable organism is selected from the group consisting of *Escherichia* spp., *Salmonella* spp., *Shigella* spp., *Campylobacter* spp., *Clostridium* spp., *Mycobacterium* spp., *Yersinia* spp., *Bacillus* spp., *Vibrio* spp., *Staphylococcus* spp., *Streptococcus* spp., *Aeromonas* spp., *Klebsiella* spp., *Entrobacter* spp., *Proteus* spp., *Citrobacter* spp., *Aerobacter* spp., *Serratia* spp,. Listeria spp,. and Bacillus Spp